

I. Amendment to the Claims

Please amend the application as follows:

Please cancel claim 97 without prejudice.

Claim 1 (Previously Amended) A method of reducing photoaging in a mammal, comprising administering to the epidermis of the mammal a composition comprising an effective amount of at least one oligonucleotide, wherein said oligonucleotide is approximately 2-200 nucleotides in length, and wherein the oligonucleotide comprises a phosphodiester backbone.

Claim 2. (Twice Amended) The method of Claim 1, wherein said oligonucleotide ~~comprises a nucleotide sequence consisting~~ consists of a nucleotide sequence or a portion of a sequence selected from the group consisting of SEQ ID NOs: 1, 2, 3, 4, 5, 6, 8, ~~9, 10, and 11 and 12~~.

Claim 3. (Original) The method of Claim 1, wherein said oligonucleotide is single-stranded.

Claim 4. (Previously Amended) The method of Claim 1, wherein the oligonucleotide comprises a 5' phosphate.

Claim 5. (Original) The method of Claim 1, wherein said oligonucleotide is at a concentration of about 1 μ M to about 500 μ M.

Claim 6. (Previously Amended) The method of Claim 1, wherein the oligonucleotide comprises a physiologically acceptable carrier.

Claim 7. (Twice Amended) A method of increasing melanin production in epidermal melanocytes, said method comprising topically administering to said ~~cells~~ epidermal melanocytes an effective amount of a composition comprising at least one oligonucleotide, wherein the oligonucleotide has a phosphodiester backbone, and wherein the oligonucleotide has a nucleotide sequence consisting of SEQ ID NO:5, SEQ ID NO:3, or SEQ ID NO:11.

Claim 8. (Twice Amended) The method of Claim 7, wherein said oligonucleotide has a nucleotide sequence consisting of SEQ ID NO: 5- or a portion thereof.

Claim 9. (Original) The method of Claim 7, wherein the oligonucleotide is single-stranded.

Claim 10. (Original) The method of Claim 7, wherein the oligonucleotide comprises a 5' phosphate.

Claim 11. (Original) The method of Claim 7, wherein the oligonucleotide is at a concentration of about 1 μ M to about 500 μ M.

Claim 12. Cancelled.

Claim 13. (Previously Amended) The method of Claim 7, wherein the composition comprises a physiologically acceptable carrier.

Claim 14. (Twice Amended) A method of increasing melanin production in epidermal melanocytes, comprising contacting topically administering the ~~cells with~~ epidermal melanocytes an effective amount of at least one oligonucleotide having a phosphodiester backbone, wherein the oligonucleotide consists of at least one sequence ~~or portion thereof~~ selected from the group consisting of: pTpT,

SEQ ID NO:1, ~~SEQ ID NO:2~~, SEQ ID NO:3, ~~SEQ ID NO:4~~, SEQ ID NO:5 –
and SEQ ID NO:11 ~~and~~ ~~SEQ ID NO:12~~.

Claim 15. (Original) The method of Claim 14, wherein the oligonucleotide is single-stranded.

Claim 16. (Original) The method of Claim 14, wherein the oligonucleotide comprises a 5' phosphate.

Claim 17. (Original) The method of Claim 14, wherein the oligonucleotide is at a concentration of about 1 μ M to about 500 μ M.

Claim 18. Cancelled.

Claim 19. (Previously Amended) The method of Claim 14, wherein the composition comprises a physiologically acceptable carrier.

Claim 20. (Previously Amended) A method of increasing DNA repair in epithelial cells, comprising applying directly to said cells an effective amount of a composition comprising pTpT.

Claims 21-22. Cancelled.

Claim 23. (Previously Amended) The method of Claim 20, wherein the pTpT is at a concentration of about 1 μ M to about 500 μ M.

Claim 24. Cancelled.

Claim 25. (Previously Amended) The method of Claim 20, wherein the composition comprises a physiologically acceptable carrier.

Claim 26. (Twice Amended) A method of inhibiting proliferation of epithelial cells, comprising topically administering to said cells an effective amount of a composition comprising pTpT.

Claims 27-28. Cancelled.

Claim 29. (Previously Amended) The method of Claim 26, wherein the pTpT is at a concentration of about 1 μ M to about 500 μ M.

Claims 30-31. Cancelled.

Claim 32. (Previously Amended) The method of Claim 26, wherein the composition comprises a physiologically acceptable carrier.

Claims 33-50. Cancelled.

Claim 51. (Previously Amended) A composition comprising at least one oligonucleotide, said oligonucleotide having a phosphodiester backbone, and a physiologically acceptable carrier, wherein at least one of said oligonucleotides has an oligonucleotide sequence consisting of SEQ ID NO: 5 and wherein said composition is suitable for medicinal or cosmetic use.

Claim 52. (Original) The composition of Claim 51, wherein at least one of said oligonucleotides comprises a 5' phosphate.

Claims 53-56. Cancelled.

Claim 57. (Previously Amended) A composition comprising at least one oligonucleotide, said oligonucleotide comprising a phosphodiester backbone, and a physiologically acceptable carrier, wherein at least one of said oligonucleotides has a nucleotide sequence consisting of SEQ ID NO:3 and wherein said composition is suitable for medicinal or cosmetic use.

Claim 58. (Original) The composition of Claim 57, wherein at least one of said oligonucleotides comprises a 5' phosphate.

Claims 59-62. Cancelled.

Claim 63. (Previously Amended) A composition comprising at least one oligonucleotide, said oligonucleotide comprising a phosphodiester backbone, and a physiologically acceptable carrier, wherein at least one of said oligonucleotides has a nucleotide sequence consisting of SEQ ID NO: 9 and wherein said composition is suitable for medicinal or cosmetic use.

Claim 64. (Original) The composition of Claim 63, wherein at least one of said oligonucleotides comprises a 5' phosphate.

Claim 65-68. Cancelled.

Claim 69. (Previously Amended) A composition comprising at least one oligonucleotide, said oligonucleotide comprising a phosphodiester backbone, and a physiologically acceptable carrier, wherein at least one of said oligonucleotides has a nucleotide sequence consisting of SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID

NO: 3 or SEQ ID NO: 4, and wherein at least one of said oligonucleotides comprises a 5' phosphate, and wherein said composition is suitable for medicinal or cosmetic use.

Claim 70. Cancelled.

Claim 71. (Twice Amended) A method of increasing p53 activity in epidermal cells, said method comprising topically administering an effective amount of d(pT)₂, or an oligonucleotide having a nucleotide sequence consisting of SEQ ID NO:1 or SEQ ID NO:6 to said cells.

Claim 72. (Previously Added) The method of Claim 71 wherein activation of p53 results in nucleotide excision repair in the cell.

Claims 73-74. Cancelled.

Claim 75. (Twice Amended) A method of treating hyperproliferative disease affecting epithelial cells in a mammal, comprising directly administering to the epithelial cells an effective amount of a composition comprising at least one DNA oligonucleotide comprising a phosphodiester backbone, wherein the oligonucleotide has a nucleotide sequence consisting of SEQ ID NO: 1, SEQ ID NO:6 or pTpT.

Claim 76. (Previously Amended) The method of Claim 75, wherein pTpT is ultraviolet-irradiated.

Claim 77. (Previously Added) The method of Claim 75, wherein the DNA fragments are administered in a delivery vehicle.

Claim 78. (Previously Added) The method of Claim 77, wherein the delivery vehicle comprises liposomes.

Claim 79. (Previously Added) The method of Claim 77, wherein the delivery vehicle comprises propylene glycol.

Claim 80. Cancelled.

Claim 81. (Previously Added) The method of Claim 75, wherein the DNA fragments are administered by aerosol.

Claim 82. (Previously Added) The method of Claim 75, wherein the mammal is a human.

Claim 83. (Previously Amended) The method of Claim 75, wherein the epithelial cells are carcinoma cells.

Claim 84. Cancelled.

Claim 85. (Twice Amended) A method of inhibiting proliferation of skin cells in a mammal, comprising administering topically to the skin cells an effective amount of a composition selected from the group consisting of deoxynucleotides, dinucleotides, or dinucleotide dimers and any of the foregoing combinations thereof.

Claim 86. (Previously Amended) A method of inhibiting or reducing DNA damage in epidermal cells of a mammal, wherein said DNA damage is caused by UV irradiation, said method comprising topically administering to the cells in the mammal an effective amount of a composition comprising DNA fragments that

are approximately 2-200 nucleotides in length, the DNA fragments being selected from the group consisting of: single-stranded DNA fragments, deoxynucleotides, dinucleotides, dinucleotide dimers and combinations thereof.

Claim 87. Cancelled.

Claim 88. (Twice Amended) A method of treating inhibiting growth of malignant cells ~~of in~~ a mammal, comprising directly administering to said cells an effective amount of DNA fragments that comprise a phosphodiester backbone and are about 2-200 nucleotides in length, the DNA fragments being selected from the group consisting of: single-stranded DNA fragments, deoxynucleotides, dinucleotides, dinucleotide dimers and combinations thereof a combination of any of the foregoing.

Claim 89. (Previously Added) The method of Claim 85, wherein said skin cells are selected from the group consisting of: epithelial cells, melanocytes, keratinocytes and fibroblasts.

Claims 90-92. Cancelled.

Claim 93. (Amended) A method of increasing melanin production in epidermal cells, said method comprising topically administering to said cells an effective amount of a composition comprising at least one single-stranded oligonucleotide, wherein the oligonucleotide has a phosphodiester backbone, and wherein the oligonucleotide ~~has a nucleotide sequence homologous to the telomere repeat sequence~~ consists of SEQ ID NO:11, SEQ ID NO:1, pTpT, SEQ ID NO:5 or a functional fragment of SEQ ID NO:5.

Claim 94. (Previously Added) A method of increasing DNA repair in skin of a mammal, comprising topically administering to the skin an effective amount of a composition comprising pTpT or an oligonucleotide having a nucleotide sequence consisting of SEQ ID NO:1.

Claim 95. (Amended) A method of treating inhibiting growth of malignant skin cells of a mammal said method, comprising topically administering to said cells an effective amount of pTpT.

Claim 96. (Previously Added) The method of Claim 95, wherein the cells are skin cells.

Claim 97. Cancelled.

Claim 98. (Previously Added) The method of Claim 86, wherein the composition comprises pTpT or a single-stranded DNA fragment having a nucleotide sequence consisting of SEQ ID NO:1 with a 5' phosphate.

Claim 99. (Previously Added) A method of inhibiting the growth of cells in a mammal, comprising directly administering to the cells of the mammal an effective amount of pTpT.

Claim 100. (Previously Added) A method of inhibiting proliferation of epithelial cells, comprising directly administering to said cells an effective amount of a composition comprising pTpT.

Claim 101. (Previously Added) A method of inhibiting proliferation of skin cells in a mammal, comprising administering topically to the skin an effective amount of a composition comprising at least one oligonucleotide having a DNA sequence consisting of pTpT or SEQ ID NO:1.

Claim 102. (Previously Added) A method of inhibiting proliferation of skin cells in a mammal, comprising administering topically to the skin of the mammal an effective amount of a composition comprising pTpT.

Claim 103. (Previously Added) The method of Claim 102, wherein said skin cells are selected from the group consisting of: melanocytes, keratinocytes and fibroblasts.

Claim 104. (Previously Added) A method of inhibiting growth of skin cells in a mammal, comprising administering to skin of the mammal an oligonucleotide having a nucleotide sequence consisting of pTpT, SEQ ID NO:1 or SEQ ID NO:6.

Claim 105. (Previously Added) The method of Claim 104 wherein the skin cells are keratinocytes.

Claim 106. (Previously Added) A composition comprising at least one oligonucleotide, said oligonucleotide having a phosphodiester backbone, and a physiologically acceptable carrier, wherein at least one of said oligonucleotides has an oligonucleotide sequence consisting of SEQ ID NO:11 and wherein said composition is suitable for medicinal or cosmetic use.

Claim 107. (Previously Added) The composition of Claim 106, wherein at least one of said oligonucleotides comprises a 5' phosphate.

Claim 108. (Previously Added) A composition comprising at least one oligonucleotide, said oligonucleotide having a phosphodiester backbone, and a physiologically acceptable carrier, wherein at least one of said oligonucleotides has an oligonucleotide sequence consisting of SEQ ID NO:12 and wherein said composition is suitable for medicinal or cosmetic use.

Claim 109. (Previously Added) The composition of Claim 108, wherein at least one of said oligonucleotides comprises a 5' phosphate.

Please add the following new claims:

Claim 110. (New) A method of increasing melanin production in epidermal melanocytes, said method comprising topically administering to said epidermal melanocytes an effective amount of a composition comprising at least one oligonucleotide, wherein the oligonucleotide has a phosphodiester backbone, and wherein the oligonucleotide has a nucleotide sequence consisting of SEQ ID NO:1, SEQ ID NO: 2; SEQ ID NO:3 or SEQ ID NO:4.

Claim 111. (New) A method of inhibiting growth of malignant skins cells in a mammal, said method comprising topically administering to the skin cells an effective amount of a composition comprising at least one oligonucleotide comprising a phosphodiester backbone, wherein the oligonucleotide consists of a sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO: 6 and pTpT.

Claim 112. (New) A method of treating hyperproliferative disease affecting epithelial cells in a mammal, comprising administering by aerosol to the epithelial cells an effective amount of a composition comprising at least one DNA oligonucleotide comprising a phosphodiester backbone, wherein the oligonucleotide has a nucleotide sequence consisting of SEQ ID NO:1, SEQ ID NO:6 or pTpT.

Claim 113. (New) A method of treating inhibiting growth of epithelial carcinoma cells in a mammal, comprising administering to the epithelial carcinoma cells an effective amount of a composition comprising at least one DNA oligonucleotide comprising a phosphodiester backbone, wherein the oligonucleotide has a nucleotide sequence consisting of SEQ ID NO:1, SEQ ID NO:6 or pTpT.